

CLAIMS

1. Stuffing/dosing machine comprising a tilting hopper, of the type
5 comprising:

a tilting hopper (1), that receives the material to be stuffed/dosed, provided with a top opening (2) having a hermetic cover (3) and a narrowed base (4) associated with an antechamber (5) that leads to the inlet of at least one stuffing chamber (6) connected to an outlet duct (8) via a connection ensemble:

10 at least one piston (9) driven by driving means (10) to perform a stroke covering a first section in said antechamber (5) and a second section in said stuffing chamber (6), of which there is at least one; and

means for stirring said material to be stuffed/dosed that is in said hopper (1) and drive it towards the said antechamber (5),

15 characterized in that an ensemble comprising the hopper (1), its cover (3), and its narrowed base (4) forms a first structural unit that can pivot around an articulation (11) between a first position, or operative position, in which a bottom mouthpiece (4a) of the narrowed base (4) of the hopper (1) is hermetically positioned in a top mouthpiece (5a) of the antechamber (5), and a second position, or cleaning and
20 maintenance position, in which said bottom mouthpiece (4a) of the narrowed base (4) of the hopper (1) is separated from said top mouthpiece (5a) of the antechamber (5) to a sufficient degree to enable easy access to both mouthpieces (4a, 5a).

2. Machine, according to claim 1, characterized in that another ensemble
25 comprising the antechamber (5), the stuffing chamber (6), the said piston (9) and its driving means (10) forms a second structural unit that can pivot around an articulation (13) between a first position, or operative position, in which a bottom mouthpiece of the stuffing chamber (6) is hermetically positioned in a top mouthpiece of said connection ensemble to the outlet duct (8), and a second position, or cleaning
30 and maintenance position, in which said bottom mouthpiece of the stuffing chamber (6) is separated from said top mouthpiece of the connection ensemble to the outlet duct (8) in a sufficient degree to enable easy access to both mouthpieces.

3. Machine, according to claim 1, characterized in that it comprises two of
35 said stuffing-dosing chambers (6), that are parallel to one another, with their inlets in said antechamber (5) and with their outlets connected to respective inlets of an alternative valve (7) coupled to said outlet duct (8), which is common to both stuffing-

dosing chambers (6), with two of said pistons (9) being arranged parallel to one another, and driven independently by said driving means (10) to perform respective strokes covering a first section in said antechamber (5) and a second section in one of the corresponding stuffing-dosing chambers (6).

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4. Machine, according to claim 3, characterized in that another ensemble comprising the antechamber (5), the two stuffing-dosing chambers (6), the said two pistons (9) and their driving means (10) forms a second structural unit that can pivot around an articulation (13) between a first position, or operative position, in which bottom mouthpieces (6a) of the stuffing-dosing chambers (6) are hermetically positioned in top inlet mouthpieces (7a) of said alternative valve (7), and a second position, or cleaning and maintenance position, in which said bottom mouthpieces (6a) of the stuffing-dosing chambers (6) are separated from said top inlet mouthpieces (7a) of the alternative valve (7) to a sufficient degree to enable easy access to both mouthpieces (6a, 7a).

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5. Machine, according to claim 4, characterized in that, said top inlet mouthpieces (7a) of the alternative valve (7), the valve proper (7) and the common outlet duct (8) are integrated in a frame (12), which forms a fixed body of the machine.

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6. Machine, according to claim 5, characterized in that said articulation (13) connects a raised point of said frame (12), near the top inlet mouthpieces (7a) of the alternative valve (7), to a point of a support (38) attached to said second structural unit and located near the mouthpiece (6a).

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7. Machine, according to claim 1 or 3, characterized in that said articulation (11) connects a raised point of said frame (12), which forms a fixed body of the machine, to a point of a support (37) attached to said first structural unit and located at a level below the mouthpiece (4a).

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8. Machine, according to claims 1 or 4, characterized in that the said hermetic seat between the mouthpieces (4a and 5a, 6a and 7a) is obtained by respective strips placed around the mouthpieces and which, in their corresponding operative positions, back onto one another, trapping an elastic sealing gasket.

9. Machine, according to claim 4, characterized in that it comprises elastic end stops (22) arranged around the bottom mouthpiece (4a) of the narrowed base (4) of the hopper (1) to abut against surfaces adjacent to the top mouthpiece (5a) of the antechamber (5) and consequently cushion the seat between both mouthpieces (4a, 5a).

10. Machine, according to claim 9, characterized in that each of said elastic end stops (22) comprises a captive pin that can slide against the strength of elastic means and ends in a contact end stop.

10 11. Machine, according to claim 1, characterized in that it comprises driving means (25) for making said first structural unit or ensemble containing the hopper, cover and narrowed bottom (1, 2, 3) pivot between said first and second positions.

15 12. Machine, according to claim 4, characterized in that it comprises driving means (26) for making said second structural unit or ensemble containing the antechamber, the stuffing-dosing chambers, pistons and their driving means (5, 6, 9, 10) pivot between said first and second positions.

20 13. Machine, according to claim 11 or 12, characterized in that said driving means (10, 25, 26) comprise at least one fluid dynamic cylinder.

14. Machine, according to claim 1, characterized in that said means for stirring and driving the material to be stuffed/dosed, which is contained in said hopper (1), towards said antechamber (5) are associated with said cover (3) and comprise a screw feeder (14) or spiral mounted on a shaft (15) supported on the inside of the cover (3), said shaft (15) extending through the cover (3) via an opening that is sealed hermetically in an appropriate fashion and being driven by driving means (16) attached to the outside part of the cover (3).

30 15. Machine, according to claim 3, characterized in that said means for stirring and driving the material to be stuffed/dosed, which is contained in said hopper (1), towards said antechamber (5) are associated with said cover (3).

35 16. Machine, according to claim 15, characterized in that the means for stirring and driving the material to be stuffed/dosed comprise a screw feeder (14) or spiral mounted on a shaft (15) supported on the inside of the cover (3), said shaft

(15) extending through the cover (3) via an opening that is sealed hermetically in an appropriate fashion and being driven by driving means (16) attached to the outside part of the cover (3).

5 17. Machine, according to claim 16, characterized in that the hopper (1) has a substantially conical part (41) adjacent to the narrowed base (4) and the shape of said screw feeder (14) is adapted so that an outer edge thereof remains near the wall of said substantially conical part (41) when the cover (3) is closed.

10 18. Machine, according to claim 16, characterized in that said driving means (16) comprise an electric or fluid dynamic motor (16) connected to the shaft (15) by means of a reducer transmission (16a).

15 19. Machine, according to claim 16, characterized in that the cover (3) is connected to the hopper (1) by means of an articulation (17), leaving the axis of said articulation (17) in a substantially vertical position when the said first structural unit, or ensemble containing the hopper, cover and narrowed base (1, 2, 3) is in the second position or cleaning and maintenance position.

20 20. Machine, according to claim 1, characterized in that said hopper (1) comprises and inlet (18) of material to be stuffed/dosed through a side wall of the hopper (1), with said inlet being connected on the outside to a supply source of material to be vacuum formed/dosed by means of a flexible conduit (42).

25 21. Machine, according to claim 20, characterized in that said inlet (18) comprises, inside the hopper (1), an outlet mouthpiece (19) opposite a seal (20) mounted on a stem that is supported on the inside part of the cover (3) and driven through the cover (3) via driving means (21) that are attached to the outside thereof.

30 22. Machine, according to claim 4, characterized in that it comprises electronic control means that control the driving means (10) of the pistons (9) so that the latter perform their strokes in an alternate manner, and said alternative valve (7) is connected to driving means that are also controlled by said electronic control means to alternatively connect the outlet of each stuffing chamber (6) to said common outlet duct (8) in a way that is synchronized with the driving of the pistons (9).

23. Machine, according to claim 22, characterized in that said electronic means are capable of controlling the speed and the movement of the strokes of the pistons (9) to provide a continuous flow of material through the common outlet duct (8) or to perform short discrete stops between partials strokes, complete strokes or 5 groups of strokes in order to provide an interrupted flow of dosed portions of material through the common outlet duct (8).

24. Machine, according to claim 1. characterized in that it comprises detection means for controlling the level of material to be stuffed/dosed inside the 10 hopper (1).